REMARKS

By this amendment, Applicants have amended claim 3 to recite that the vegetable foam particles have a thermal conductivity ranging between 0.03 and 0.06 W/m.°K. See, e.g., page 4, lines 3-5 of Applicants' specification.

Claims 2-6, 8-11 and 21-23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,858,489 to Beauquin in view of U.S. Patent No. 5,272,181 to Boehmer et al. Applicants traverse this rejection and request reconsideration thereof.

The present invention relates to a method for thermally insulating an enclosure and to an installation containing a thermal insulant for an enclosure. Broadly, the present invention relates to insulation of a first enclosure placed in a second enclosure. The enclosures can consist of a string of tubings intended for transportation of a petroleum effluent, placed in another pipe, from a well for example. Several thermal insulation techniques are currently known. The string can be insulated by using tubings comprising an insulating material deposited or fastened outside the tubings. This method is very expensive and the tubings are difficult to handle. The annulus can also be filled with a more or less insulating fluid, gelled gas oil, or rigid foam manufactured in situ. However, liquids are not very good insulants, gels are delicate to use in operation and not very temperature stable, while manufacture of rigid foams is difficult to control and sending them into the annulus blocks the tubing string in the well, thus preventing complete withdrawal of the string.

The method of the present invention comprising filling a volume defined by the space contained between a first enclosure interior to a second enclosure with vegetable foam particles. Thus, the installation comprises a first enclosure placed in a second enclosure and is characterized in that the space between the enclosures

comprises a volume of vegetable foam particles used as a thermal insulant. According to the method of the present invention, by using the vegetable foam particles, the particles can be solubulized by an aqueous fluid, and the first enclosure free pulled from the second enclosure. This is possible since the vegetable foam particles are at least partially soluble in an aqueous fluid. As set forth in independent claims 3 and 9, the vegetable foam particles have a thermal conductivity ranging between 0.03 and 0.06 W/m.°K and are least partially soluble in an aqueous fluid. This allows the vegetable foam particles to provide both thermal insulation and to allow for free pulling of the first enclosure.

The patent to Beauquin discloses a system for thermal and/or acoustic insulation of a tube intended, for example, to allow the outflow of hydrocarbons originating from an oil deposit, consisting of a sleeve surrounding the tube over at least a part of its length. The sleeve consists of an aerogel. As admitted by the Examiner, the Beauquin patent does not disclose that the insulant comprises vegetable foam particles, much less vegetable foam particles having a thermal conductivity ranging between 0.03 and 0.06 W/m.°K.

The Boehmer et al. patent discloses biodegradable expanded foam material prepared by combining a starch-graft copolymer with grain based starch containing materials and 15 to 25% water and expanding the mixture either with or without blowing agents. The types of products which can be formed by the expanded foam material are described at column 3, lines 21 - 29 of Boehmer et al. as follows:

> The expected products of the invention include a wide array of foamed articles, including loose fill packing, foam sheeting, rigid foam blocks, and miscellaneous thermoformed products such as egg containers, food trays, plates, and food containers. In addition, the formulation is useful for making floor swiping compounds, and may be used for packaging hazardous waste materials which are to undergo a degradative treatment process.

All of the examples of Boehmer et al. relate to the formation of loose-fill packaging materials, similar to those popularly known as "foam peanuts," and a foam sheet for use in packaging.

Clearly, the Boehmer et al. patent is mainly directed to packing and packaging materials and provides absolutely no suggestion that the biodegradable expanded foam material can be used as an insulant for a pipe insulating jacket. Likewise, there is no suggestion in Beauquin and that the material of Boehmer et al. should be used in the pipe insulating jacket.

In fact, the Beauquin patent appears to teach away from using particles, at least particles loaded in a liquid. See, column 2, lines 6-23. The Beauquin patent clearly teaches using an aerogel, not particles. Moreover, since there is no disclosure in Boehmer et al. that the expanded foam material described therein can be used as a thermal and/acoustic insulation, there is no motivation to use the material in place of the aerogel of Beauquin.

Clearly, neither Beauquin nor Boehmer et al. would have suggested filling the space contained between a first enclosure interior to a second enclosure with vegetable foam particles that are soluble in water to allow free pulling of the first enclosure. Certainly there is no suggestion to use particles having an average particle size below 5 mm. See, claims 5 and 21.

Since the vegetable foam particles are used in the present invention for thermal insulation, they have a thermal conductivity ranging between 0.03 and 0.06 W/m.°K. There is absolutely no suggestion in Boehmer et al. that the expanded foam material has such a thermal conductivity. In fact, there is no suggestion that the expanded foam material of Boehmer et al. can be used for thermal insulation.

For the foregoing reasons, the presently claimed invention would not have been suggested by the proposed combination of Beauquin and Boehmer et al.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 612.41024X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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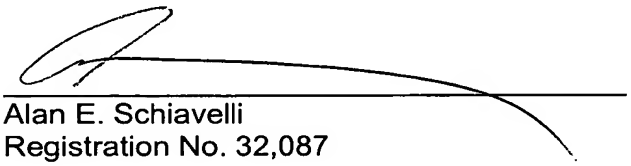

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